

INDEX

1990

Articles by month

Article title	Pg.	Dept.	Article title	Pg.	Dept.
January					
Looking backward and forward	7	ED	Metal-halide lamps enliven chocolate displays	79	PM
Definitions—Article 100	12	QC	Neutral current damage to underground pipe	80	RQ
Installing a maintenance jumper	30	MF	Which is better -back or side-wired receptacles?	80	RQ
Engineering plastics in wire and cable	34	WS	Protecting conduit from corrosion	82	RQ
MV cable shielding in coordination study, a must!	47	F	Comment on batteries and battery rooms	88	CF
Engineer-contractor team updates computer power	58	F	Adjusting the size of an equipment grounding conductor	88	CF
Closed versus open transition transfer switching	69	F	Silicone as a sealant	90	CF
Security Pacific Plaza retrofits for energy savings	86	PM	Lighting: how much longer an underachiever?	138	AI
Lighting brings Dames Point Bridge to life	86	PM			
Pilot Field illuminated with M-H lamps	88	PM	April		
Advancing hydroponic technology in the US	90	PM	Making construction sites safer takes industry cooperation ..	7	ED
Luminaires meet demands at California aquarium	90	PM	Requirements for electrical installations; quest 8-14	12	QC
What is the correct voltage at neutral-to-ground	94	RQ	Hands-on approach to solving harmonic problems - Part 2	30	MF
Which is better-back-or side-wired receptacles?	96	RQ	Microelectronic controls in HVAC equipment	36	WS
Grounding conductors in box fill calculations	100	CF	Automatically positioned terminal gates direct passengers	49	F
Required lighting outlets in dwelling units	100	CF	Light and power for an outdoor amphitheater	61	F
Computers and electrical design	170	AI	Fast-track installation of undercarpet systems	65	F
			Monitoring system utilizes electrical disturbance analyzers ..	65	F
			Is it worth pursuing your construction claim?	C3	CS
			Voice and data wiring is an opportunity for contractors	C4	CS
			Lighting savings spell success for I-X Center	72	PM
			California utility incorporates HPS lighting system	72	PM
			Designer selects lighting for appliance warehouse	74	PM
			Lighting system cuts energy use in garages	76	PM
			If the neutral separates from the service panel	82	RQ
			Maintenance testing with cables and equipment energized	84	RQ
			GFCIs for rooftop equipment outlets	92	CF
			CSA/UL memorandum of understanding	126	AI
			May		
			Welcome aboard, Fred!	7	ED
			Induction and dielectric heating equipment	12	QC
			Short-circuit protection for IEC motor contactors	30	MF
			Nonlinear loads and transformers—another solution	36	WS
			Engineering cable tray systems - Part 1	47	F
			Optimizing aisle lighting using computer-aided analysis	52	F
			Power system design for ultra-reliability	55	F
			Floodlights accent landmark	86	PM
			Submetering saves building owner \$250,000	86	PM
			Luminaire meets demand of metal finisher	90	PM
			Calculating voltage drop at 400 Hz	96	RQ
			Will plastic plates save lives?	98	RQ
			Simplify ballast mounting	102	RQ
			Expansion joint requirements	108	CF
			Applying demand factors	108	CF
			Disconnects for mobile homes	110	CF
			Conductors for fire alarms	112	CF
			Standby generators pay for themselves thru peak-shaving	168	AI
February					
Assessing lighting as it relates to productivity	7	ED			
Definitions—Article 100	12	QC			
Quick disconnects speed motor maintenance	30	MF			
Transformer decision tree	34	WS			
Primary selective system powers Ellis Island	54	F			
MV service upgrade assures expansion flexibility	62	F			
Computer-based electrical systems help speed railcar repair ..	68	F			
US Sprint installs energy-saving lamps	76	PM			
Emergency lighting satisfies requirements on sub	76	PM			
How to keep customers coming back	C3	CS			
Contractor approach to uniform wiring plans	C8	CS			
Transformer manufacturer meets utility's needs	78	PM			
How to calculate high-leg voltage to ground	80	RQ			
Comment on T-connected transformers	85	RQ			
Feedback on Note 3	88	CF			
Clear workspace at over 600V nominal	90	CF			
Why independent electrical testing?	124	AI			
March					
Ground it!	7	ED			
Requirements for electrical installations; quest. 1-7	12	QC			
Hands-on approach to solving harmonic problem—Part 1	32	MF			
Beating the high cost of AC power conditioning	40	WS			
Redundancy-data-processing center's primary characteristic ..	51	F			
Rotary UPS supplies 415-Hz computer power	60	F			
Understanding the use of new fluorescent ballast designs	67	F			
Teamwork powers up after Hurricane Hugo	76	PM			
Ramada Inn cuts energy consumption	76	PM			

Key to dept. abbreviations

ED = Thoughts From Our Shop □ QC = Quizzes on the Code □ WS = What's the Story? □ PM = Practical Methods □ RQ = Readers' Quiz □ CF = Code Forum
 MF = Motor Facts or Maintenance Facts □ AI = As I See It □ F = Feature article □ CS = Contractor Special Section □ SS = Special Section

September		
Designing electrical systems	7	ED
Receptacle placements in dwelling units	12	QC
Eliminate the UPS's weakest links	26	MF
Understanding PLC networks - Part 2	29	WS
Effective design for better security systems	41	F
Self-protected starters overcome space limitations	47	F
Fiberoptics provide HACR control in NYC office	51	F
Luminaires provide efficient illumination for warehouse	56	PM
Maintenance management contract on ships	56	PM
Horn Field lighted up	58	PM

November		
Looking to the future - with knowledge and caution	7	ED
Feeders - Article 215	12	MC
Operate motors with safety - Part 2	28	QC
Teledata cabling systems standards	37	WS
Updating light sources for facilities	49	F
Lighting controls help reduce energy consumption	61	F
New life for an old plant	67	F
California water utility controls water hammer	74	PM
Illumination for Crazy Horse Memorial	77	PM
How deep in the hole should a pole go?	78	RC
Do energy-efficient lamps/ballasts result in shorter life?	79	RC
Is "pigtailng" required on feed-through device wiring?	84	C
Continuous loads on service conductors	84	C
Slash markings on circuit breakers	87	C
There's a need for surge protection	120	A

December	
Recession - what recession?	7
Branch-circuit and feeder calculations	12
Can your DMM do the job?	16
Impact of the 1990 NEC on fiberoptic cable	24
Computerized monitoring guards modernized data center	31
Conditioning power circuits with transient suppressors	39
Primary distribution on a massive scale	49
A novel way to light a new library	54
Illinois hospital cures costly computer crashes	54
Distribution and metering solved	58
Is 50-yr old aluminum wiring safe?	60
How much current should a 1500kVA transformer carry?	62
Are metallic device boxes permitted to support fixtures?	66
Cord-connected outlet boxes	66
Re-engineering transformers improves reliability	88

EDITORIAL INDEX-1990

Articles by subject

Article title	Month	Pg.	Dept.
Automation and controls			
Microelectronic controls in HVAC equipment	APR	36	WS
Automatically positioned gates direct passengers	APR	49	F
There's no replacement for skill	JUN	7	ED
Servicing PLC 120V I/O modules	JUN	37	F
Taming electrical interference in control racks	JUN	43	F
Understanding PLC networks - Part 1	AUG	36	WS
Understanding PLC networks - Part 2	SEP	29	WS
Self-protected starters overcome space limitations	SEP	47	F
Fiberoptics provides HACR control in office complex	SEP	51	F
Understanding PLC networks - Part 3	OCT	37	WS
Lighting controls help reduce energy consumption	NOV	61	F
New life for an old plant	NOV	67	F
California water utility controls water "hammer"	NOV	74	PM

Business

Looking backward and forward	JAN	7	ED
Computers and electrical design	JAN	170	AI
Transformer decision tree	FEB	34	WS
How to keep customers coming back	FEB	C3	CS
Contractor approach to uniform wiring plans	FEB	C8	CS
Why independent electrical testing?	FEB	124	AI
Lighting: how much longer an underachiever?	MAR	138	AI
Teamwork powers up after Hurricane Hugo	MAR	76	PM
Making construction sites safer takes cooperation	APR	7	ED
Is it worth pursuing your construction claim?	APR	C3	CS
Voice and data wiring is opportunity for contractors	APR	C4	CS
CSA/UL memorandum of understanding	APR	126	AI
Welcome aboard, Fred!	MAY	7	ED
Submetering saves building owner \$250,000	MAY	86	PM
Standby generators pay thru peak-shaving	MAY	168	AI
Buy, lease, or rent: the economics	JUN	C1	CS
Business continuity and management succession	JUN	C8	CS
Service is more than a word	JUN	102	AI
Experimental lift truck	JUL	70	PM
Security systems increases contractor revenue	JUL	112	AI
Designing electrical systems	SEP	7	ED
Installing a UPS	SEP	104	AI
Dire consequences for carelessness	OCT	7	ED
The '91 trucks	OCT	C1	CS
Tips to stop equipment theft	OCT	S5	SS
Licensing/certification of electricians	OCT	134	AI
Looking to the future - with knowledge and caution	NOV	7	ED
Recession - what recession?	DEC	7	ED
Re-engineering transformers improves reliability	DEC	88	AI

Calculations and design

MV cable shielding in coordination study, a must!	JAN	47	F
Grounding conductors in box fill calculations	JAN	100	CF
Computers and electrical design	JAN	170	AI
How to calculate high-leg voltage to ground	FEB	80	RQ
Clear workspace at over 600V nominal	FEB	90	CF
Sizing an equipment grounding conductor	MAR	88	CF
Short-circuit protection for IEC motor contactors	MAY	30	MF
Engineering cable tray systems - Part 1	MAY	47	F
Optimizing lighting using computer-aided analysis	MAY	52	F
Power system design for ultra-reliability	MAY	55	F
Calculating voltage drop at 400 Hz	MAY	96	RQ
Expansion joint requirements	MAY	108	CF

Article title	Month	Pg.	Dept.
Applying demand factors	MAY	108	CF
Standby generators pay thru peak-shaving	MAY	168	AI
Taming electrical interference in control racks	JUN	43	F
Engineering cable tray systems - Part 2	JUN	49	F
New coliseum is enhanced by lighting	JUN	58	PM
Starting a 2400V motor with a wye-delta controller	JUN	66	RQ
Commercial service conductor rating	JUN	72	CF
Derating parallel wires	JUN	75	CF
Beware of phase-shift in delta-wye transformers	JUL	53	F
Capacitors improve power factor and reduce losses	AUG	63	F
Identification of ungrounded conductors	AUG	82	CF
Designing electrical systems	SEP	7	ED
Effective design for better security systems	SEP	41	F
Wye or delta data used to calculate voltage drop?	SEP	62	RQ
Effective electrical design supports major facility	OCT	47	F
Wye or delta data used to calculate voltage drop?	OCT	82	RQ
Why are phase-to-ground voltages different?	OCT	82	RQ
Ranges connected to a 3-phase feeder	OCT	90	CF
Continuous loads on service conductors	NOV	84	CF
Branch-circuit and feeder calculations	DEC	12	QC
How much current should a 1500kVA transformer carry?	DEC	62	RQ

Computers and power conditioning

Installing a maintenance jumper	JAN	30	MF
Engineer-contractor team updates computer power	JAN	58	F
What is the correct voltage at neutral-to-ground	JAN	94	RQ
Computers and electrical design	JAN	170	AI
Computer-based electrical systems speed rail repair	FEB	68	F
Ground it!	MAR	7	ED
Hands-on approach to solving harmonics- Part 1	MAR	32	MF
Beating the high cost of AC power conditioning	MAR	40	WS
Redundancy - data center's primary characteristic	MAR	51	F
Rotary UPS supplies 415-Hz computer power	MAR	60	F
Comment on batteries and battery rooms	MAR	88	CF
Nonlinear loads and transformer—another solution	MAY	36	WS
Optimizing aisle lighting using computer analysis	MAY	52	F
Power system design for ultra-reliability	MAY	55	F
Power monitoring solves billing at plant	JUN	56	PM
Eliminate the UPS's weakest links	SEP	26	MF
Fiberoptics provides HACR control in office complex	SEP	51	F
Maintenance management contract on ships	SEP	56	PM
Installing a UPS	SEP	104	AI
Effective electrical design supports major facility	OCT	47	F
Power protection to meet needs	OCT	74	PM
Grounding electronic equipment	OCT	92	CF
Lighting controls help reduce energy consumption	NOV	61	F
New life for an old plant	NOV	67	F
There's a need for surge protection	NOV	120	AI
Computerized monitoring guards data center	DEC	31	F
Conditioning circuits with transient suppressors	DEC	39	F
Illinois hospital cures costly computer crashes	DEC	54	PM

Energy cost and management

Security Pacific Plaza retrofits for energy savings	JAN	86	PM
Lighting brings Dames Point Bridge to life	JAN	86	PM
US Sprint installs energy-saving lamps	FEB	76	PM
Understanding the use of new fluorescent ballasts	MAR	67	F
Ramada Inn cuts energy consumption	MAR	76	PM
California utility incorporates HPS lighting system	APR	72	PM

EDITORIAL INDEX-1990

Article title	Month	Pg.	Dept.
Lighting savings spell success for I-X Center	APR	72	PM
Lighting system cuts energy use in garages	APR	76	PM
Power system design for ultra-reliability	MAY	55	F
Submetering saves building owner \$250,000	MAY	86	PM
Standby generators pay for thru peak-shaving	MAY	168	AI
Power monitoring solves billing at plant	JUN	56	PM
Capacitors improve power factor and reduce losses	AUG	63	F
Schools reduce energy use	AUG	72	PM
PCB transformer changeout corrects code violations	OCT	55	F
Energy-saving relamping in schools	OCT	76	PM
Looking to the future - with knowledge and caution	NOV	7	ED
Updating light sources	NOV	49	F
Illumination for Crazy Horse Memorial	NOV	77	PM
Distribution and metering solved	DEC	58	PM
Re-engineering transformers improves reliability	DEC	88	AI

Equipment and products

Engineering plastics in wire and cable	JAN	34	WS
MV cable shielding in coordination study, a must!	JAN	47	F
Closed versus open transition transfer switching	JAN	69	F
Which is better- back- or side-wired receptacles?	JAN	96	RQ
Quick disconnects speed motor maintenance	FEB	30	MF
Transformer manufacturer meets utility's needs	FEB	78	PM
Comment on T-connected transformers	FEB	85	RQ
Hands-on approach to solving harmonics- Part 1	MAR	32	MF
Beating the high cost of AC power conditioning	MAR	40	WS
Rotary UPS supplies 415-Hz computer power	MAR	60	F
Understanding the use of new fluorescent ballast	MAR	67	F
Which is better -back or side-wired receptacles?	MAR	80	RQ
Comment on batteries and battery rooms	MAR	88	CF
Microelectronic controls in HVAC equipment	APR	36	WS
Monitoring utilizes electrical disturbance analyzers	APR	65	F
Nonlinear loads and transformers—another solution	MAY	36	WS
Engineering cable tray systems - Part 1	MAY	47	F
Power system design for ultra-reliability	MAY	55	F
Will plastic plates save lives?	MAY	98	RQ
New life for wound-rotor motors	JUN	22	MF
Fire safety: a factor in transformer changeout	JUN	28	WS
Engineering cable tray systems - Part 2	JUN	49	F
Power monitoring solves billing at plant	JUN	56	PM
Starting a 2400V motor with a wye-delta controller	JUN	66	RQ
New regulations on light poles	JUL	32	WS
Experimental lift truck	JUL	70	PM
Nucor Steel completes mill early	JUL	70	PM
Operating motors in damp environments	AUG	30	MF
Understanding PLC networks - Part 1	AUG	36	WS
MV service upgrade adds reliability, flexibility	AUG	53	F
Capacitors improve power factor and reduce losses	AUG	63	F
Fiberoptics for contractors	AUG	71	CF
Will batteries discharge on concrete floors?	AUG	76	RQ
Eliminate the UPS's weakest links	SEP	26	MF
Understanding PLC networks - Part 2	SEP	29	WS
Self-protected starters overcome space limitations	SEP	47	F
PCB transformer changeout corrects code violations	OCT	55	F
Lighting controls help reduce energy consumption	OCT	61	F
The '91 trucks	OCT	C1	CS
Modern tools help improve productivity	OCT	C1	SS
Tips to stop equipment theft	OCT	S5	SS
Tools for field-installing optical connectors	OCT	S6	SS
Updating light sources	NOV	49	F

Article title	Month	Pg.	Dept.
California water utility controls water hammer	NOV	74	PM
Slash markings on circuit breakers	NOV	87	CF
Can your DMM do the job?	DEC	16	MF
Computerized monitoring guards data center	DEC	31	F
Conditioning circuits with transient suppressors	DEC	39	F
Re-engineering transformers improves reliability	DEC	88	AI

Facilities

Team updates computer-center power	JAN	58	F
Security Pacific Plaza retrofits for energy savings	JAN	86	PM
Lighting brings Dames Point Bridge to life	JAN	86	PM
Pilot Field illuminated with M-H lamps	JAN	88	PM
Hydroponic technology in supermarket	JAN	90	PM
Luminaires meet demands at California aquarium	JAN	90	PM
Primary selective system powers Ellis Island	FEB	54	F
MV service upgrade at Chromalloy	FEB	62	F
Computer-based systems speed LIRR repairs	FEB	68	F
Emergency lighting requirements on sub	FEB	76	PM
US Sprint installs energy-saving lamps	FEB	76	PM
Rotary UPS supplies 415-Hz to computer center	MAR	60	F
Ramada Inn cuts energy consumption	MAR	76	PM
Redundancy-data center's primary characteristic	MAR	51	F
Automatic terminal gates at Miami airport	APR	49	F
Light and power for an outdoor amphitheater	APR	61	F
Disturbance analyzers at U Iowa hospital	APR	55	F
Undercarpet systems at bank headquarters	APR	65	F
California utility incorporates HPS lighting	APR	72	PM
Designer selects lighting for warehouse	APR	74	PM
Lighting system cuts energy use in garages	APR	76	PM
Design for ultra-reliability at IDS Financial	MAY	55	F
Submetering at multitenant building	MAY	86	PM
Floodlights accent Hereford Building	MAY	86	PM
Luminaire meets demand of Hixon Metal	MAY	90	PM
Disconnects for mobile home	MAY	110	CF
Power billing at manufacturing plant	JUN	56	PM
New coliseum is enhanced by lighting	JUN	58	PM
Electrical renovations update prison	JUL	43	F
Phone-data systems support space center	JUL	59	F
Link uses existing wiring for building controls	JUL	68	PM
Nucor Steel completes mill early	JUL	70	PM
Ellis Island - updated to the past	AUG	47	F
MV service upgrade at Rockefeller Center	AUG	53	F
Cut-off luminaires brighten car dealership	AUG	70	PM
Schools reduce energy use	AUG	72	PM
Dad Dogfood self-protected starters	SEP	47	F
Fiberoptics HACR control in office complex	SEP	51	F
Maintenance management contract on ships	SEP	56	PM
Illumination for warehouse	SEP	56	PM
Horn Field lighted up	SEP	58	PM
Electrical design of Minneapolis Convention Center	OCT	47	F
PCB transformer changeout at Hampshire College	OCT	55	F
Conduit installation at hospital	OCT	63	F
New life for an old plant	OCT	67	F
Dramatic night lighting at office complex	OCT	69	PM
Lighting at the Soccer World Cup	OCT	69	PM
Power protection at MetPath Labs	OCT	74	PM
Energy-saving relamping in schools	OCT	76	PM
California water utility controls water hammer	NOV	74	PM
Illumination for Crazy Horse Memorial	NOV	77	PM
Computerized monitoring guards data center	DEC	31	F

EDITORIAL INDEX-1990

Article title	Month	Pg.	Dept.
Pittsburg Airport primary distribution	DEC	49	F
Illinois hospital cures costly computer crashes	DEC	54	PM
A novel way to light a new library	DEC	54	PM

Grounding

MV cable shielding in coordination study, a must!	JAN	47	F
What is the correct voltage at neutral-to-ground	JAN	94	RQ
Ground it!	MAR	7	ED
Neutral current damage to underground pipe	MAR	80	RQ
Sizing an equipment ground conductor	MAR	88	CF
If neutral separates from the service panel	APR	82	RQ
Will plastic plates save lives?	MAY	98	RQ
Taming electrical interference in control racks	JUN	43	F
Engineering cable tray systems - Part 2	JUN	49	F
MV service upgrade adds reliability, flexibility	AUG	53	F
PCB transformer changeout corrects code violations	OCT	55	F
Why are phase-to-ground voltages different?	OCT	82	RQ
Grounding electronic equipment	OCT	92	CF
Primary distribution on a massive scale	DEC	49	F

Installation methods

Computer-based electrical systems speed rail repair	FEB	68	F
MV service upgrade assures expansion flexibility	FEB	62	F
Primary selective system powers Ellis Island	FEB	54	F
Grounding conductors in box fill calculations	JAN	100	CF
Which is better- back- or side-wired receptacles?	JAN	96	RQ
Neutral current damage to underground pipe	MAR	80	RQ
Protecting conduit from corrosion	MAR	82	RQ
Silicone as a sealant	MAR	90	CF
Fast-track installation of undercarpet systems	APR	65	F
Simplify ballast mounting	MAY	102	RQ
Expansion joint requirements	MAY	108	CF
Disconnects for mobile homes	MAY	110	CF
Engineering cable tray systems - Part 2	JUN	49	F
Terminating aluminum cable at motors	JUL	26	MF
Electrical renovations update prison	JUL	43	F
Phone-data systems support space center facility	JUL	59	F
Nucor Steel completes mill early	JUL	70	PM
Fiberoptics for contractors	AUG	C1	CS
Ellis Island - updated to the past	AUG	47	F
MV service upgrade adds reliability, flexibility	AUG	53	F
Protecting conduit from corrosion	AUG	76	RQ
Supporting conductors in vertical raceways	AUG	82	CF
Identification of ungrounded conductors	AUG	82	CF
Fiberoptics provides HACR control in office complex	SEP	51	F
Do sign rules conflict with other sections	SEP	68	CF
Orientation of receptacle ground holes	SEP	68	CF
Installing a UPS	SEP	104	AI
Dire consequences for carelessness	OCT	7	ED
Selecting and installing motors safely - Part 1	OCT	30	MF
PCB transformer changeout corrects code violations	OCT	55	F
Conduit installation at hospital overcomes obstacles	OCT	63	F
Modern tools help improve productivity	OCT	S1	SS
Tools for field-installing optical connectors	OCT	S6	SS
Power conduit bending	OCT	S9	SS
Illumination for Crazy Horse Memorial	NOV	77	PM
"Pigtailing" required on feed-through device wiring?	NOV	84	CF
Slash markings on circuit breakers	NOV	87	CF
Primary distribution on a massive scale	DEC	49	F

Article title	Month	Pg.	Dept.
Metallic device boxes permitted to support fixtures?	DEC	66	CR

Lighting

Security Pacific Plaza retrofits for energy savings	JAN	86	PM
Lighting brings Dames Point Bridge to life	JAN	86	PM
Pilot Field illuminated with M-H lamps	JAN	88	PM
Luminaires meet demands at California aquarium	JAN	90	PM
Advancing hydroponic technology in the US	JAN	90	PM
Which is better- back- or side-wired receptacles?	JAN	96	RQ
Required lighting outlets in dwelling units	JAN	100	CF
Assessing lighting as it relates to productivity	FEB	7	ED
Emergency lighting satisfies requirements on sub	FEB	76	PM
US Sprint installs energy-saving lamps	FEB	76	PM
Understanding the use of new fluorescent ballasts	MAR	67	F
Ramada Inn cuts energy consumption	MAR	76	PM
Metal-halide lamps enliven chocolate displays	MAR	79	PM
Which is better- back or side-wired receptacles?	MAR	80	RQ
Lighting: how much longer an underachiever?	MAR	138	AI
Light and power for an outdoor amphitheater	APR	61	F
California utility incorporates HPS lighting system	APR	72	PM
Lighting savings spell success for I-X Center	APR	72	PM
Designer selects lighting for appliance warehouse	APR	74	PM
Lighting system cuts energy use in garages	APR	76	PM
Optimizing aisle lighting using computer analysis	MAY	52	F
Floodlights accent landmark	MAY	86	PM
Luminaire meets demand of metal finisher	MAY	90	PM
Simplify ballast mounting	MAY	102	RQ
New coliseum is enhanced by lighting	JUN	58	PM
New regulations on light poles	JUL	32	WS
1000W cut-off luminaires brighten car dealership	AUG	70	PM
Schools reduce energy use	AUG	72	PM
Luminaires provide illumination for warehouse	SEP	56	PM
Horn Field lighted up	SEP	58	PM
Do sign rules conflict with other sections?	SEP	68	CF
Orientation of receptacle ground holes	SEP	68	CF
Required lighting outlets	OCT	12	QC
Effective electrical design supports major facility	OCT	47	F
Conduit installation at hospital overcomes obstacles	OCT	63	F
Lighting at the Soccer World Cup	OCT	69	PM
Dramatic night lighting	OCT	69	PM
Energy-saving relamping in schools	OCT	76	PM
Looking to the future - with knowledge and caution	NOV	7	ED
Updating light sources	NOV	49	F
Lighting controls help reduce energy consumption	NOV	61	F
Illumination for Crazy Horse Memorial	NOV	77	PM
A novel way to light a new library	DEC	54	PM
Metallic device boxes permitted to support fixtures?	DEC	66	CR

Maintenance

Installing a maintenance jumper	JAN	30	MF
Engineer-contractor team updates computer power	JAN	58	F
Luminaires meet demands at California aquarium	JAN	90	PM
What is the correct voltage at neutral-to-ground	JAN	94	RQ
Which is better- back or side-wired receptacles?	JAN	96	RQ
Quick disconnects speed motor maintenance	FEB	30	MF
Transformer decision tree	FEB	34	WS
Transformer manufacturer meets utility's needs	FEB	78	PM
Why independent electrical testing?	FEB	124	AI
Hands-on approach to solving harmonics - Part 1	MAR	32	MF
Teamwork powers up after Hurricane Hugo	MAR	76	PM
Comment on batteries and battery rooms	MAR	88	CF

EDITORIAL INDEX-1990

Article title	Month	Pg.	Dept.
Silicone as a sealant	MAR	90	CF
Hands-on approach to solving harmonics -Part 2	APR	30	MF
Monitoring utilizes electrical disturbance analyzers	APR	65	F
Maintenance testing with cables energized	APR	84	RQ
What if neutral separates from the service panel?	APR	82	RQ
GFCIs for rooftop equipment outlets	APR	92	CF
Will plastic plates save lives?	MAY	98	RQ
Simplify ballast mounting	MAY	102	RQ
There's no replacement for skill	JUN	7	ED
New life for wound-rotor motors	JUN	22	MF
Fire safety: critical in transformer changeout	JUN	28	WS
Servicing PLC 120V I/O modules	JUN	37	F
Terminating aluminum cable at motors	JUL	26	MF
Experimental lift truck	JUL	70	PM
What are power-factor tests?	JUL	74	RQ
Why does autotransformer CB trip sometimes?	JUL	76	RQ
Protecting conduit from corrosion	AUG	76	RQ
Will batteries discharge on concrete floors?	AUG	76	RQ
Maintenance management contract on ships	SEP	56	PM
Why does autotransformer CB trip sometimes?	SEP	62	RQ
Modern tools help improve productivity	OCT	51	SS
Conduit installation at hospital overcomes obstacles	OCT	63	F
Operate motors with safety - Part 2	NOV	28	MF
Can your DMM do the job?	DEC	16	MF
Is 50-yr old aluminum wiring safe?	DEC	60	RQ
Re-engineering transformers improves reliability	DEC	88	AI

National Electrical Code

Art 100 Definitions	JAN	12	QC
Art 100 Definitions	FEB	12	QC
Art 110 Requirements for installations, quest 1-7	MAR	12	QC
Art 110 Requirements for installations, quest 8-14	APR	12	QC
Sec 110-3(b) Metallic device boxes support fixtures?	DEC	66	CF
Sec 110-34 Clear workspace at over 600V nominal	FEB	90	CF
Art 200 Use and identifying grounded conductors	JUL	12	QC
Sec 210-4(d) Ungrounded conductors in fittings	AUG	82	CF
Sec 210-7 Orientation of receptacle ground holes	SEP	68	CF
Sec 210-52(a) Receptacles in dwelling units	SEP	12	QC
Sec 210-52(c) Kitchen countertop receptacles	AUG	12	QC
Sec 210-63 GFCIs for rooftop equipment outlets	APR	92	CF
Sec 210-70 Required lighting outlets	OCT	12	QC
Sec 210-70(a) Lighting outlets in dwelling units	JAN	100	CF
Art 220 Branch-circuit and feeder calculations	DEC	12	QC
Sec 220-10(b) Loads on service conductors	NOV	84	CF
Sec 220-19 Ranges connected to a 3-phase feeder	OCT	90	CF
Tab 220-19 Applying demand factors	MAY	108	CF
Sec 230-90(a) Commercial service conductors	JUN	72	CF
Art 250 Feeders	NOV	12	QC
Sec 250-5(d) Ground R!	MAR	7	ED
Sec 250-75 Grounding electronic equipment	OCT	92	CF
Sec 300-13(b) "Pigtailing" device wiring	NOV	84	CF
Sec 300-19(a) Supporting conductors in raceways	AUG	82	CF
Sec 310-10 Derating parallel wires	JUN	75	CF
Tab 310-16 thru 19 Feedback on Note 3	FEB	88	CF
Art 318 Engineering cable tray systems - Part 1	MAY	47	F
Art 328 Fast-track installation undercarpet systems	APR	65	F
Sec 347-9 Expansion joint requirements	MAY	108	CF
Sec 370-6(a)(1) Box fill calculations	JAN	100	CF
Art 374 Auxiliary gutters: are they raceways?	JUN	72	CF

Article title	Month	Pg.	Dept.
Sec 384-3(c) If neutral separates from panel	APR	82	RQ
Sec 400-8(1) Cord-connected outlet boxes	DEC	66	CF
Sec 410-18(a) Will plastic plates save lives?	MAY	98	RQ
Art 430 Protection for IEC motor contactors	MAY	30	MF
Sec 450-42 Transf. change corrects violations	OCT	55	F
Sec 480-8(a) Comment on batteries and rooms	MAR	88	CF
Sec 518-2 Nonfire-rated place of assembly	JUL	82	CF
Sec 550-23 Disconnects for mobile homes	MAY	110	CF
Sec 600-31(a) Ex. Do sign rules conflict?	SEP	68	CF
Sec 660-6(b) Equipment grounding conductor	MAR	88	CF
Art 665 Induction and dielectric heating	MAY	12	QC
Art 668 Electrolytic cells	JUN	12	QC
Sec 680-20(b)(1) Silicone as a sealant	MAR	90	CF
Sec 760-30(a) Conductors for fire alarms	MAY	112	CF
Art 770 Impact of the 1990 NEC on fiberoptic cable	DEC	24	WS

Power distribution

Engineer-contractor team updates computer power	JAN	58	F
Primary selective system powers Ellis Island	FEB	54	F
MV service upgrade assures expansion flexibility	FEB	62	F
Redundancy - data center's primary characteristic	MAR	51	F
Rotary UPS supplies 415-Hz computer power	MAR	60	F
Power system design for ultra-reliability	MAY	55	PM
Power monitoring solves billing at plant	JUN	56	PM
Electrical renovations update prison	JUL	43	F
Beware of phase-shift in delta-wye transformers	JUL	53	F
Nucor Steel completes mill early	JUL	70	PM
Ellis Island - updated to the past	AUG	47	F
MV service upgrade adds reliability, flexibility	AUG	53	F
Capacitors improve power factor and reduce losses	AUG	63	F
Self-protected starters overcome space limitations	SEP	47	F
Effective electrical design supports major facility	OCT	47	F
PCB transformer changeout corrects code violations	OCT	55	F
Conduit installation at hospital overcomes obstacles	OCT	63	F
New life for an old plant	OCT	67	F
California water utility controls water hammer	NOV	74	PM
Primary distribution on a massive scale	DEC	49	F
Current a 1500kVA transformer can carry	DEC	62	RQ
Re-engineering transformers improves reliability	DEC	88	AI

Protecting equipment and personnel

MV cable shielding in coordination study, a must!	JAN	47	F
Emergency lighting satisfies requirements on sub	FEB	76	PM
Why independent electrical testing?	FEB	124	AI
Ground it!	MAR	7	ED
Making construction sites safer takes cooperation	APR	7	ED
If the neutral separates from the service panel	APR	82	RQ
GFCIs for rooftop equipment outlets	APR	92	CF
CSA/UL memorandum of understanding	APR	126	AI
Short-circuit protection for IEC motor contactors	MAY	30	MF
Power system design for ultra-reliability	MAY	55	F
Will plastic plates save lives?	MAY	98	RQ
Conductors for fire alarms	MAY	112	CF
Fire safety: a factor in transformer changeout	JUN	28	WS
Power monitoring solves billing at plant	JUN	56	PM
Why does autotransformer CB trip sometimes?	JUL	76	RQ
Installing security systems increases revenue	JUL	112	AI
MV service upgrade adds reliability, flexibility	AUG	53	F
Protecting conduit from corrosion	AUG	76	RQ

EDITORIAL INDEX-1990

Article title	Month	Pg.	Dept.
Effective design for better security systems	SEP	41	F
Why does autotransformer CB trip sometimes?	SEP	62	RQ
Tips to stop equipment theft	OCT	55	SS
New life for an old plant	OCT	67	F
Slash markings on circuit breakers	NOV	87	CF
There's a need for surge protection	NOV	120	AI
Conditioning circuits with transient suppressors	DEC	39	F
Computerized monitoring guards data center	DEC	31	F
Primary distribution on a massive scale	DEC	49	F
How much current should a transformer carry?	DEC	62	RQ

Specifications and standards

Engineering plastics in wire and cable	JAN	34	WS
MV cable shielding in coordination study, a must!	JAN	47	F
Closed versus open transition transfer switching	JAN	69	F
Which is better - back or side-wired receptacles?	JAN	96	RQ
Contractor approach to uniform wiring plans	FEB	88	CS
Understanding the use of fluorescent ballasts	MAR	67	F
Which is better - back or side-wired receptacles?	MAR	80	RQ
CSA/UL memorandum of understanding	APR	126	AI
Nonlinear loads and transformers—another solution	MAY	36	WS
Engineering cable tray systems - Part 1	MAY	47	F
Conductors for fire alarms	MAY	112	CF
Engineering cable tray systems - Part 2	JUN	49	F
New regulations on light poles	JUL	32	WS
Fiberoptics for contractors	AUG	61	CS
Vinyl's fire performance - perception and reality	AUG	110	AI
Eliminate the UPS's weakest links	SEP	26	MF
Installing a UPS	SEP	104	AI
Selecting and installing motors safely - Part 1	OCT	30	MF
PCB transformer changeout corrects code violations	OCT	55	F
Conduit installation overcomes obstacles	OCT	63	F
Teledata cabling systems standards	NOV	37	WS
Updating light sources	NOV	49	F
Slash markings on circuit breakers	NOV	87	CF
Can your DMM do the job?	DEC	16	MF
Distribution and metering solved	DEC	58	PM
How much current should a transformer carry?	DEC	62	RQ
Re-engineering transformers improves reliability	DEC	88	AI

Teledata and fiberoptics

Computer-based electrical systems speed repair	FEB	68	F
Contractor approach to uniform wiring plans	FEB	88	CS
Voice and data wiring opportunity for contractors	APR	64	CS
Power monitoring solves billing at plant	JUN	56	PM
Phone-data systems support space center	JUL	59	F
Link uses existing wiring for building controls	JUL	68	PM
Fiberoptics for contractors	AUG	61	CS
Tools for field-installing optical connectors	OCT	56	SS
Effective electrical design supports facility	OCT	47	F
Conduit installation overcomes obstacles	OCT	63	F
Teledata cabling systems standards	NOV	37	WS
Impact of the 1990 NEC on fiberoptic cable	DEC	24	WS

Testing and monitoring

What is the correct voltage at neutral-to-ground	JAN	94	RQ
MV service upgrade assures flexibility	FEB	62	F
Hands-on approach to solving harmonics - Part 1	MAR	32	MF
Hands-on approach to solving harmonics - Part 2	APR	30	MF
Monitoring system utilizes disturbance analyzers	APR	65	F

Maintenance testing with cables energized	APR	84	RQ
Servicing PLC 120V I/O modules	JUN	37	F
What are power-factor tests?	JUL	74	RQ
Fiberoptics for contractors	AUG	61	CS
Can your DMM do the job?	DEC	16	MF

Tutorials

Installing a maintenance jumper	JAN	30	MF
Engineering plastics in wire and cable	JAN	34	WS
MV cable shielding in coordination study, a must!	JAN	47	F
Closed versus open transition transfer switching	JAN	69	F
What is the correct voltage at neutral-to-ground	JAN	94	RQ
How to calculate high-leg voltage to ground	FEB	90	RQ
Hands-on approach to solving harmonics - Part 1	MAR	32	MF
Beating the high cost of AC power conditioning	MAR	40	WS
Understanding fluorescent ballasts	MAR	67	F
Hands-on approach to solving harmonics - Part 2	APR	30	MF
Microelectronic controls in HVAC equipment	APR	36	WS
If the neutral separates from the service panel	APR	82	RQ
Short-circuit protection for IEC motor contactors	MAY	30	MF
Nonlinear loads and transformers	MAY	36	WS
Engineering cable tray systems - Part 1	MAY	47	F
Optimizing aisle lighting using computer	MAY	52	F
Calculating voltage drop at 400 Hz	MAY	96	RQ
Applying demand factors	MAY	108	CF
Fire safety: a factor in transformer changeout	JUN	28	WS
Servicing PLC 120V I/O modules	JUN	37	F
Taming electrical interference in control racks	JUN	43	F
Engineering cable tray systems - Part 2	JUN	49	F
Starting a motor with a wye-delta controller	JUN	66	RQ
Beware of phase-shift in delta-wye transformers	JUL	53	F
What are power-factor tests?	JUL	74	RQ
Operating motors in damp environments	AUG	30	MF
Understanding PLC networks - Part 1	AUG	36	WS
MV service upgrade adds reliability, flexibility	AUG	53	F
Capacitors improve power factor	AUG	63	F
Will batteries discharge on concrete floors?	AUG	76	RQ
Vinyl's fire performance - perception and reality	AUG	110	AI
Fiberoptics for contractors	AUG	61	CS
Eliminate the UPS's weakest links	SEP	26	MF
Understanding PLC networks - Part 2	SEP	29	WS
Effective design for better security systems	SEP	41	MF
Selecting and installing motors safely - Part 1	OCT	30	MF
Understanding PLC networks - Part 3	OCT	37	WS
Lighting controls help reduce energy consumption	OCT	61	F
Why are phase-to-ground voltages different?	OCT	82	RQ
Wye or delta data used to calculate voltage drop	OCT	82	RQ
Licensing/certification of electricians	OCT	134	AI
Modern tools help improve productivity	OCT	51	SS
Tips to stop equipment theft	OCT	55	SS
Tools for field-installing optical connectors	OCT	56	SS
Power conduit bending	OCT	59	SS
Operate motors with safety - Part 2	NOV	28	MF
Teledata cabling systems standards	NOV	37	WS
Updating light sources	NOV	49	F
Slash markings on circuit breakers	NOV	87	CF
Continuous loads on service conductors	NOV	84	CF
Can your DMM do the job?	DEC	16	MF
Branch-circuit and feeder calculations	DEC	12	QC
Conditioning circuits with transient suppressors	DEC	39	F